MicroVAX Diagnostic Monitor Release Notes

Order Number AA–GO3AQ–TN

These release notes describe restrictions, undocumented features, and other essential information about the MicroVAX Diagnostic Monitor (MDM) Version 3.1, Release 127. These release notes supersede all other MDM documentation.

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Preface

These release notes describe new features, enhancements, and bug fixes for the MicroVAX Diagnostic Monitor (MDM) Version 3.1 Release 127 as they apply to diagnostic development.

Intended Audience

These release notes are intended for the following people:

- System managers who are installing MDM
- Individuals responsible for maintaining microVAX systems

Document Structure

These notes are organized as follows:

- Chapter 1 lists updates.
- Chapter 2 lists new features and enhancements.
- Chapter 3 lists problems and corrections.

Associated Documents

The following is a list of the available MDM documents:

- *MDM Programmer's Guide*
- *MDM Development Kit Installation Guide*
- *MDM User's Guide*
- *MDM Ethernet Server User's Guide*
- *MDM RA/RD Customer Release Notes*
- *MDM RA/RD Maintenance Release Notes*
- *MDM Hard Disk User's Guide*
- *MDM Reference Card*

Conventions

This book uses the following conventions:

KEY	Indicates a key on your keyboard.
CTRL/key	Indicates control keys. For example, Control C is shown as CTRL/C.
Bold print after prompt	Indicates user input.
UPPERCASE characters	Indicate input that you should type exactly as shown.
lowercase characters	Indicate input that you should replace with an appropriate word or phrase. For example, in the following interactive command: MDM>> **SELECT devicename** SELECT should be typed as shown, but *devicename* should be replaced with the actual name of a device.

Chapter 1
Updates

This chapter updates information necessary to run MicroVAX Diagnostic Monitor (MDM).

1.1 General MDM Updates

This section updates hardware and installation requirements.

1.1.1 One Megabyte System Support Restriction

This release does not support 1 megabyte systems. For support of such systems, see MDM Version 2.11. Commands governing 1 megabyte systems in the *MDM User's Guide*.

1.1.2 CTRL/C Command Errors

In CTRL/C mode, if a user enters a command with its arguments and it is and invalid command they will get the "invalid command" error message. If, however, a user enters and an invalid CTRL/C command without all its arguments, they will be prompted for the appropriate arguments.

1.1.3 Description of Extended Sniff Capability/limitation

If a device which is listed as two or more unknowns is connected, only the connected address changes as requested. The other unknowns remain in the tables called by SHOW BUS or SHOW CONFIGURE commands.

If a non-Digital device is placed in floating space, it must have a higher address than the last known Digital device. Otherwise, the former device may be missed.

In summary unknown devices (devices configured incorrectly and/or 3rd party boards) will be listed in the show bus command output as unknown. The sniff algorithm will skip 8 bytes after an 'unknown device' is discovered. Hence the potential of an unknown device appearing as 2 unknown devices

will occur if the device occupies 16 bytes. Also if the unknown device occupies less than 8 bytes it could potentially be missed altogether.

1.1.4 IOADDRS configs dlvj1 different from SYSGEN

MDM recognizes the fact that the DLVJ1 can count as 3 or 4 boards and MDM configures and loads the diagnostics correctly, so the vectors don't get thrown off. But, SYSGEN still configures the system differently than MDM. MDM is correct, though. This can still cause problems because if a system is setup according to VMS, then MDM won't run on it. If the DLVJ1 is used as 3 ports, VMS puts the DLVJ1 at 160010, 160020, and 160030. MDM correctly puts it at 176500, 176510, and 176520.

1.1.5 QNA and TMSCP

IOADDRES and SYSGEN (prior to VMS Version 5.0-1) are different with this configuration of two QNA devices and two TMSCP devices in the system. IOADDRES puts the second TMSCP device at vector 304, while SYSGEN puts the device at 310. This difference throws off all the devices in floating space after that. Any system that runs VMS will fail MDM if the settings are not changed. The outputs are:

	IOADDRES		SYSGEN	
QNA	174440	120	174440	120
QNA	174460	300	174460	120
TMSCP	174500	260	174500	260
TMSCP	160404	304	160404	310

1.1.5.1 SYSGEN and MDM different with 2 TSVs and DRV11W

There is an incompatibility with VMS and MDM. It is MDM that is correct. VMS is wrong in version 4.7. Version 5.0-2 of VMS corrects the problem.

	MDM			SYSGEN	
TSV05A	172520	224	TSV05A	172520	224
TSV05B	172524	300	TSV05B	172525	300
DRV11W	160240	304	DRV11W	160240	310

Version 5.0-2 of VMS correct the problem and has the DRV11W at the vector 304, like MDM does now.

1.1.6 CONNECT Command

When using the CONNECT command, enter a file name at least three characters long. You may enter a filename of up to 10 characters, however, the SHOW BUS command displays only the first eight characters of the filename.

1.1.7 Device Diagnostic Support

Table 1–1 provides updates on device support.

Table 1–1: Device Diagnostic Support

Controller	Device	Revision	File Name
CPU	KA620	H	NAKAA
	KA630		
	KA640		
	KA650		
	KA655		
MEMORY	KA620	J	NAMSA
	MS630		
MEMORY	MS650	E	NAMTA
DPV11	LP25	G	NALPA
	LP26		
	LP27		
	LG01		
	LG02		
RQDX2 & RQDX3	RX50	Q	NARXA
	RD32		
	RD33		
	RD52		
	RD53		
	RD54		
KDA50–Q & KLESI	RA81	M	NAKDA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
	RA82		
	RA70		
	RA60		
	RC25		
TQK50	TK50	H	NATKA
	TK70		
DEQNA	QNA/DELQA	M	NAXQA
DLVJ1	–	D	NADLA
DZQ11 & DZV11	–	F	NADEA
DRV11–WA	–	I	NADRA
DRV11–J	–	E	NADRB
DPV11	–	G	NADPA
DMV11	–	H	NADMA
RRD50	–	H	NARRA
KMV11A (KMV1A)	–	E	NAKMA
KMV11B (KMV1B)	–	E	NAKMA
IEQ11	–	B	NAIEA
DHQ11		K	NADHA
CXY08	–		
CXA16	–		
CXB16	–		
CXF32	–		
DHF11	–		
DHV11	–		
DFA01	–	E	NADFA
VCB01	–	F	NAVCA
KWV11–C	–	F	NAKWA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
ADV11–DA	–	E	NAADA
AAV11–DA	–	F	NAAAA
AAV11–C	–	B	NAAAC
ADV11–C	–	A	NAADC
AXV11–C	–	D	NAAXA
VCB02	–	F	NAVCB
DSV11	–	F	NADSA
VSV11	VSV21–AA	E	NAVVA
	VSV21–CA		
	VSV90		
DRQ11–C	–	B	NADQA
LNV11	–	C	NALAA
LNV11	–	C	NALNA
TU81E	–	F	NATUA
TSV05	–	H	NATSA
DRQ3B	–	E	NAQBA
IBQ01	–	C	NAIBA
IAV11–A	–	C	NAIAA
IAV11–B	–	C	NAIAB
IDV11–A	–	C	NAIDA
IDV11–B	–	F	NAIDB
IDV11–C	–	C	NAIDC
IDV11–D	–	C	NAIDD
MIRA	–	E	NAMIA
KXJ11	–	G	NAKXA
ADQ32	–	E	NAAQA
RV20	–	E	NARVA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
DESNA	–	D	NACQA
DTC–04	–	B	NADTA
IGQ11	–	A	NAIGA
KWB11–W	–	B	NAKWB
KWV11–W	–	B	NAKWB
POLARSTAR	–	C	NAQCA
GS03–WD–DHV11	–	A	NAGSA
GS03–WD–DQZ11	–	A	NAGSB
LANCE	–	C	NALAN
DSSI	–	B	NADSI
VS550	–	C	NAVSA
KFQSA	RF30	D	NAKFA
RQX05		B	NARQA
DELIX[1]	–	D	NADXA

[1] Indicates diagnostics that are included on the media, but are not supported in the auto-configuration information. To use these diagnostics the custom configuration commands must be used.

1.1.8 MDM System Notes and Updates

You will find a Software Performance Report (SPR) form in each kit. These SPR forms provide two functions. First, they are a means of letting the software developers know as soon as possible about problems found in the product. Secondly, they provide users a way to offer suggestions based on actual use of the product.

1.1.9 TK50 Load Times

Table 1–2 is a chart of TK50 and TK70 load times for MDM versions 114 through 127. Load time is the length of time necessary for a system to load and configure the diagnostics for the individual devices in the system. The listed times do not include the length of time needed for the monitor to load initially (the elapsed time from the boot command to the display of the disclaimer).

Table 1–2: TK Load Times (in minutes)

Release	TK50	TK70	TK50	TK70	TK50	TK70	TK50	TK70
	(CONFIG 1)		(CONFIG 2)		(CONFIG 3)		(CONFIG 4)	
114	07:49	na*	06:50	na*	19:52	na*	09:30	na*
115	25:55	na*	39:44	na*	35:23	na*	14:21	na*
116	09:33	na*	12:21	na*	24:49	na*	12:19	na*
116A	11:21	na*	09:47	na*	25:59	na*	12:54	na*
118	10:25	na*	10:30	na*	29:46	na*	13:06	na*
120	10:12	06:55	10:11	07:01	31:02	23:21	13:15	07:55
121	07:30	04:59	06:04	05:57	17:49	15:22	07:40	05:55
122	06:18	05:08	06:22	05:07	19:04	16:28	07:48	06:03
123	07:26	05:11	06:29	05:12	19:41	16:42	09:17	06:10
124	09:36	07:00	09:17	06:50	21:55	18:52	11:08	08:18
125	10:05	07:40	10:10	07:30	22:25	21:04	12:12	08:45
126	09:47	07:09	09:42	07:03	23:25	21:11	11:20	08:30
127	09:31	07:08	09:36	07:00	24:02	21:23	11.27	08:24

* Load times are listed in minutes. Versions before 120 did not support TK70 drives. No comparisons can be made between those versions and versions between 120 and 127.

Key to Configuration Devices

- Config 1 = CPU, MEM, DEQNA, RQDX2, DMV11, TK
- Config 2 = CPU, MEM, DEQNA, TK, TSV05, DMV11, KDA50, CXY08
- Config 3 = CPU, MEM, RQDX3, TK, DEQNA, DMV11, KDA50, RC25, DZV11, DZQ11, DPV11, KWV11–C
- Config 4 = CPU, MEM, DEQNA, RQDX3, TK, VCB02

The difference of load times on the same system between KA650 CPU and MicroVAX CPU is less than 3%. The KA650 is slightly faster than the MicroVAX. Thus, load times are not CPU-dependent.

1.1.10 Order Number Reference

Table 1–3 lists order numbers for current diagnostics.

Table 1–3: Order Number Reference

Part Number	Title
ZNA01–C3	Customer Diagnostics on RX50
ZNA01–C5	Customer Diagnostics on TK50
ZNA02–GZ	MV DIAG MDM ENET CUST DOC
ZNA02–P5	MV DIAG MDM ENET CUST TK50
ZNA02–PH	MV DIAG MDM ENET CUST RL02
ZNA02–PM	MV DIAG MDM ENET CUST 1600 bpi MT
ZNA06–C3	Maintenance diagnostics on RX50
ZNA06–C5	Maintenance diagnostics on TK50
ZNA06–GZ	Maintenance documentation
ZNA07–C5	MV DIAG MDM ENET MAINT TK50
ZNA07–CH	MV DIAG MDM ENET MAINT RL02
ZNA07–CM	MV DIAG MDM ENET MAINT 1600 bpi MT
ZNA07–GZ	MV DIAG MDM ENET MAINT DOC
ZNA08–C5	MV DIAG ULTRIX ENET MAINT TK50
ZNA08–CM	MV DIAG ULTRIX ENET MAINT 16 bpi MT
ZNA08–GZ	MV DIAG ULTRIX ENET MAINT DOC
ZNA09–GZ	MV DIAG ULTRIX ENET CUST DOC
ZNA09–P5	MV DIAG ULTRIX ENET CUST TK50
ZNA09–PM	MV DIAG ULTRIX ENET CUST 1600 bpi MT
ZNA10–C5	MV DIAG RA/RD CUST DIAG TK50
ZNA10–CM	MV DIAG RA/RD CUST DIAG 1600 bpi MT
ZNA11–C5	MV DIAG RA/RD MAINT DIAG TK50
ZNA11–CM	MV DIAG RA/RD MAINT DIAG 1600 bpi MT

1.1.11 Automatic Distribution of Diagnostics

A diagnostic contact has been designated for each geographic area within the U.S. (See Table 1–4.) Field personnel should work with their area contact for all diagnostic needs. This includes additions and deletions to the ADS mailing lists for all VAX, PDP–11, MicroVAX, MICRO–11, and KLAD systems, and any newly released system. They should also work with their area contact to resolve problems.

Table 1–4: Area Contacts for Diagnostic Distribution

Area	Contact	Direct	DTN	ENET Address
CENTRAL	CORINE GORDON	312–640–0301	421–5640	DECMAIL::GORDON
CSC–ATLANTA	ESTHER CREEK	404–953–6174	435–3293	DECMAIL●IPO
CSC–COLORADO	FRANK MENDEZ	719–548–5587	522–5587	NEXUS::MENDEZ
EAST CENTRAL	KAREN PICKETT	313–347–5406	471–5406	USFHSL::PICKETT
IN–DEC	MADDY VEGA	508–467–8274	262–8274	SENIOR::VEGA
MID–ATLANTIC	PAT KOZLOWSKI	215–283–4241	328–4241	DECMAIL●PHH
NEW YORK	BERNIE COUILLARD	212–884–6780	335–6780	OBIWAN::COUILLARD
NORTHEAST	PEARL MAGIERA	508–441–6624	288–6624	NERSW5::MAGIERA
SOUTH CENTRAL	CAROLYN DUERKSEN	214–702–4606	483–4606	DPOMAI::DUERKSEN
SOUTHERN	GWEN BRINKLEY	404–257–2455	351–2455	ODIXIE::GBRINKLEY
SOUTHWEST	PEGGIE ROSE_KOZO	714–261–4418	NONE	SWAM1::ROSE_KOZO
WESTERN	SUSAN BROWN	408–496–3014	521–3014	WR1FOR::BROWNSU
GIA	SONNY NEWSON	719–548–5499	522–5499	BSS::NEWSON

1.2 MDM Diagnostic Notes and Updates

All diagnostics have been rebuilt and are incompatible with previous versions of MDM. The diagnostics are source-compatible only. The following diagnostics have been revised for Version 3.1.

```
NAKDAM
NARVAE
NADXAD
NAVCBF
NARXAQ
NAMTAE
NAKFAD
NATSAH
NAIDAB
NAIDBF
NAIABC
```

Chapter 2
Enhancements and New Features

This chapter discusses enhancements and features which were added to MDM Version 3.1 Release 127, Version 3.01 Release 126, and Version 3.0 Release 125.

2.1 New Features for Version 3.1—Release 127

The following sections describe these features.

2.1.1 TAILORED MDM TAPES

MDM maintenance tape kits will include a VMS utility program that will customize tapes to the user's specifications. The user will be able to make a tape that will contain only the diagnostics that are necessary. This utility will only be supplied with MDM bootable kits that are distributed on TK media.

The data file CUSTOM.DAT will contain a list of all the diagnostics that are provided on the MDM TK maintenance media. The user should copy the data file and edit the new file to contain a list of the diagnostics that will be included on the new tape. The following commands will copy all the files from the TK media to the VMS system. The files should be copied into a clean directory.

```
    insert MDM tape into proper drive.

VMS> set def disk$user:[tape.custom]
VMS> alloc MUAx:       (x = unit drive number)
VMS> mount MUAx:  ELAN
VMS> copy MUAx:[SYS0.SYSEXE]*.* []
VMS> dismount MUAx:
VMS> dealloc MUAx:

    remove MDM tape from the drive.
```

All diagnostic programs and the data file must reside in the same directory. After the files have been copied from the media, the user should insert the TK media that will contain the customized version into the tape drive. The user should type the command @CUSTOM at the VMS prompt inorder to

execute the utility program. The utility program will prompt the user for the device name of the drive, the name of the data file that contains a list of the diagnostic programs to be loaded and the location of where the files are. From the information provided, the program will load the requested files onto the tape. After this is done, it will prompt the user asking if another tape should be built.

```
VMS>> @CUSTOM
      +-----------------------------------------------------+
      +                                                     +
      +                                                     +
      +                                                     +
      +     This utility builds a custom MDM diagnostic     +
      +                                                     +
      +                kit on the TK50/70 tape              +
      +                                                     +
      +                                                     +
      +                                                     +
      +                                                     +
      +-----------------------------------------------------+

             Before continuing:

                1) Make sure the TK tape is loaded.
                2) Check to see that the diagnostic .dat file
                   is correct.
                3) To exit the utility type QUIT only at
                   the prompt.

CUSTOM> Insert TK50/70 cartridge in the tape drive and type GO,
                                                    then <CR>.

CUSTOM> Diagnostic location (e.g. DISK$USER:[DOE])?
                                          disk$user:[tape.custom]

CUSTOM> Name of the data file. [CUSTOM.DAT]? DIAG.DAT

CUSTOM> Device name for the tape drive. [MUA0]?

        Thank you.  There are no more questions to answer.
          Initializing Tape
          Mounting Tape

            Copied SYSBOOT.EXE to MUA0:[SYS0.SYSEXE]SYSBOOT.EXE
            Copied NARRA.EXE to MUA0:[SYS0.SYSEXE]NARRA.EXE
            Copied NAXQA.EXE to MUA0:[SYS0.SYSEXE]NAXQA.EXE
            Copied NAMSA.EXE to MUA0:[SYS0.SYSEXE]NAMSA.EXE
            Copied NATKA.EXE to MUA0:[SYS0.SYSEXE]NATKA.EXE

          Rewinding and dismounting tape . . .

      +-----------------------------------------------------+
      +                                                     +
      +                                                     +
      +                                                     +
      +      You have successfully built your media.        +
      +                                                     +
      +                                                     +
      +-----------------------------------------------------+

CUSTOM> Do you want to build another kit [N] ? n
```

2.1.2 DELAY CONFIGURATION IN MENU MODE

2.1.2.1 Functional Description

Presently when Menu Mode has been selected, a configuration is done immediately. When an unknown device, such as a third party device, needs to be connected, a complete reload of all diagnostics is required. To eliminate this time consuming task, MDM will give the user the opportunity to connect the new device before a configuration is done.

2.1.2.2 User Interfaces

The system will no longer automatically configure the system in Menu Mode right after it has been booted. Presently when Menu Mode is selected right after the system has been booted, messages appear on the screen indicating which diagnostic is being loaded and configured for the system before the menu is displayed on the screen. In version 3.1 of MDM, the configuration will not be done prior to entering the MAIN MENU. Therefore, the messages associated with a configure will no longer be immediately displayed on the screen. Instead the MAIN MENU is immediately printed upon entering MENU MODE.

2.1.2.3 Diagnostic Configuration

Diagnostic configuration will only take place in menus that require it. If it is the first time the diagnostic is to be configured, it is first loaded and then configured so both the load and configure messages are displayed on the screen. If it is not the first time, only the configure messages are displayed. The following selections from the MAIN MENU cause a configure to be done each time the selection is entered:

```
1 - Test the System
2 - Display System Configuration and Devices
3 - Display System Utilities Menu
6 - Select Single Device Tests
```

The following selection from the MAIN MENU/SERVICE MENU causes a configure to be done each time the selection is entered:

```
2 - Exercise System Continuously
```

The following selection from the MAIN MENU/SERVICE MENU causes a configure to be done only if a config has not been done prior to selecting this menu:

```
3 - Display the Device Menu
```

The following selections from the MAIN MENU/SERVICE MENU/DEVICE MENU will cause a configure to be done each time the selection is entered:

```
2 - Perform all functional tests
3 - Perform the exerciser test
4 - Display the device utilities menu
```

NOTE: Loading and configuring the diagnostics is only done after selecting one of the menu commands mentioned above. It is no longer done in the MAIN MENU/CONNECT/IGNORE MENU

2.1.3 Booting from RF drives

In version 3.1 of MDM, the hard disk boot capability has been expanded to include RFxx devices. Please note that booting from the DSSI port is not supported in this release, even though it is referenced in the MDM Hard Disk User's Guide.

2.2 New Features for Version 3.0—Release 125

2.2.1 SHOW BUS Command

Prior to MDM releases 125, if an unrecognized device was encountered during the sniff, the sniff was terminated. Now, the sniff continues to the end of the address space. The unknown device is listed as UNKNOWN with a SHOW BUS command. Any device that is found during the extended sniff that is not recognized is also listed as UNKNOWN.

The following example lists two UNKNOWN devices at addresses 175450 and 177040. These may or may not be DIGITAL devices. The only valid information known about each device is its base CSR address. The file name, vector, and BR level are all unknown. The CONNECT command would have to be used in order for these devices to be tested. As with anything shown in the SHOW BUS display, if any of the fields are not set, the device comes up as UNKNOWN in the configuration. In order for a diagnostic to be loaded against a device, all parameters must have been filled in.

```
                Autoconfigure set ON

FILENAME      CSR      VECTOR    BR_LEVEL    STATUS

 NAKAAB     160000      000          0       CONNECTED
 NAMSAC     160002      000          0       CONNECTED
 NARXAN     172150      154          4       CONNECTED
 NAXQAI     174440      120          5       CONNECTED
 UNKNOWN    175450      000          0       IGNORED
 NADHAK     160440      300          4       CONNECTED
 UNKNOWN    177040      000          0       IGNORED
```

2.2.2 Diagnostic File Names

Prior to MDM release 125, diagnostic file names were generated by placing a prefix of GGSKM before the diagnostic device indicator. Under Version 3.01, the diagnostic file name is the same as the file name of its source code. This means that all diagnostics are placed on the distribution media as NAdev.EXE, where NA is a prefix and 'dev' is the device indicator of the diagnostic.

This change alters the following user interfaces:

- The SHOW BUS command—The file name in the SHOW BUS display now reflects the NAdev format.
- The CONNECT command—File names are now entered under the new name structure.

2.2.3 Booting from RA and RD Disks

In Version 3.0 of MDM, kits are available for booting MDM from RDxx devices and RAxx devices. The kits are available in both customer and maintenance form and are provided on TK50 and 1600 bpi media in the form of VMS savesets. These kits are usable only on VMS systems, not on ULTRIX systems.

NOTE: *See MDM Hard Disk Installation Guide for more details. Before using this feature, each customer must sign a form and file a copy at the Field Service Office.*

2.2.4 Changes to Error Handling and Reporting

Version 3.01 introduces a global error handler manager:

- To provide an error handler for each program block
- To display an error message with status codes and halt MDM

A sample error message is :

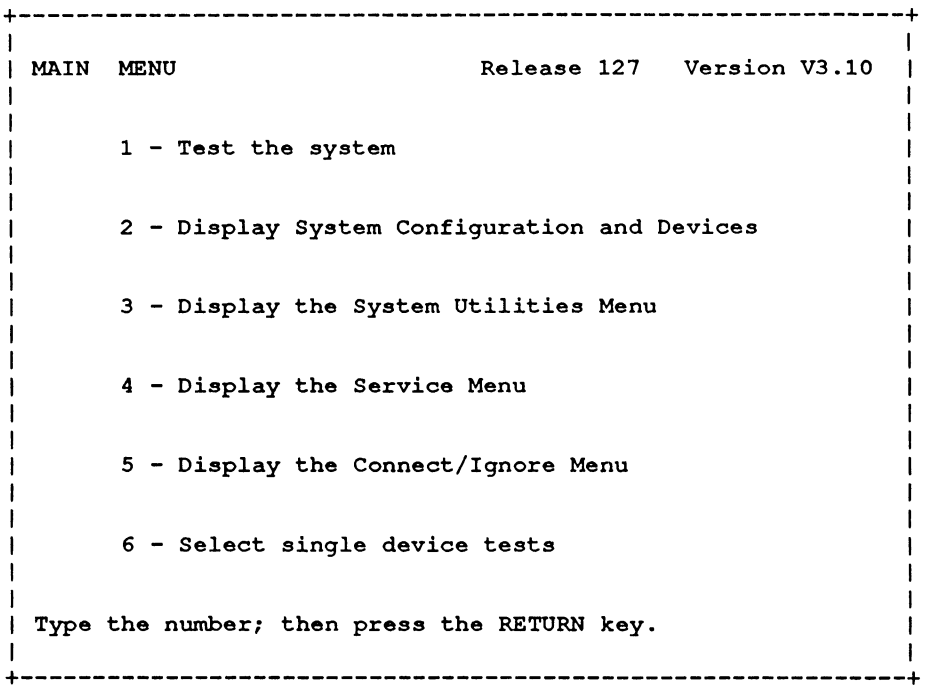
```
!!!!!!-- SYSTEM HALTED - FATAL ERROR - INI --!!!!!!
!!!!!!-- THE ERROR EXCEPTION NUMBER --!!!!!!
```

2.2.5 Custom Configuring Through Menus

The ability to use the custom configure feature of MDM was added to the customer kit in VERSION 2.30 of MDM. With this feature, customer kits can test each device individually. The flow of screens and user input are outlined in the following sections.

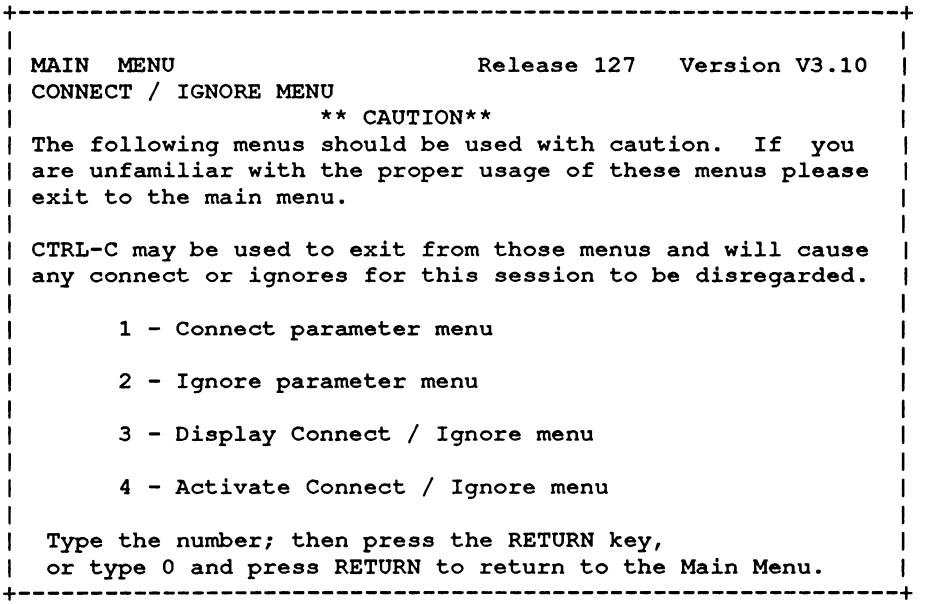
NOTE: *Figure 2-3's prompts appear on the screen one line at a time.*

Figure 2–1: MAIN MENU


MAIN MENU
Release 127 Version V3.10
1 - Test the system
2 - Display System Configuration and Devices
3 - Display the System Utilities Menu
4 - Display the Service Menu
5 - Display the Connect/Ignore Menu
6 - Select single device tests
Type the number; then press the RETURN key.

5 - goes to figure 2-2

Figure 2–2: CONNECT / IGNORE MENU


MAIN MENU Release 127 Version V3.10
CONNECT / IGNORE MENU
** CAUTION**
The following menus should be used with caution. If you are unfamiliar with the proper usage of these menus please exit to the main menu.
CTRL-C may be used to exit from those menus and will cause any connect or ignores for this session to be disregarded.
1 - Connect parameter menu
2 - Ignore parameter menu
3 - Display Connect / Ignore menu
4 - Activate Connect / Ignore menu
Type the number; then press the RETURN key,
or type 0 and press RETURN to return to the Main Menu.

1 - goes to figure 2-3
2 - goes to figure 2-4
3 - goes to figure 2-5
4 - goes to figure 2-6

Figure 2–3: CONNECT PARAMETER MENU

```
+------------------------------------------------------------+
|                                                            |
| MAIN  MENU                        Release 127   Version V3.10  |
| CONNECT / IGNORE MENU                                      |
| CONNECT PARAMETER MENU                                     |
|                                                            |
|  Type each parameter as it is requested and press RETURN   |
|                                                            |
|       ENTER CSR.....                                       |
|                                                            |
|       ENTER Filename....                                   |
|                                                            |
|       ENTER Vector......                                   |
|                                                            |
|       ENTER Br_level....                                   |
|                                                            |
|  Filename       CSR     Vector  Br_level        Status     |
|  xxxxxxxx      xxxxxx    xxx       x           CONNECTED    |
|                                                            |
| Press RETURN if all parameters are correct,                |
| or type 1 and press RETURN to disregard the parameters.    |
|                                                            |
+------------------------------------------------------------+
```

Figure 2–4: IGNORE PARAMETER MENU

```
+------------------------------------------------------------+
|                                                            |
| MAIN  MENU                        Release 127   Version V3.10  |
| CONNECT / IGNORE MENU                                      |
| IGNORE PARAMETER MENU                                      |
|                                                            |
|    Enter the CSR address of the device to ignore and press |
|    RETURN                                                  |
|                                                            |
|    ENTER CSR....                                           |
|                                                            |
|    Filename       CSR     Vector  Br_level        Status   |
|    xxxxxxxx      xxxxxx    xxx       x           IGNORED    |
|                                                            |
|                                                            |
| Press RETURN if entry is correct,                          |
| or type 1 and press RETURN to disregard.                   |
|                                                            |
+------------------------------------------------------------+
```

Figure 2–5: CONNECT / IGNORE DISPLAY MENU

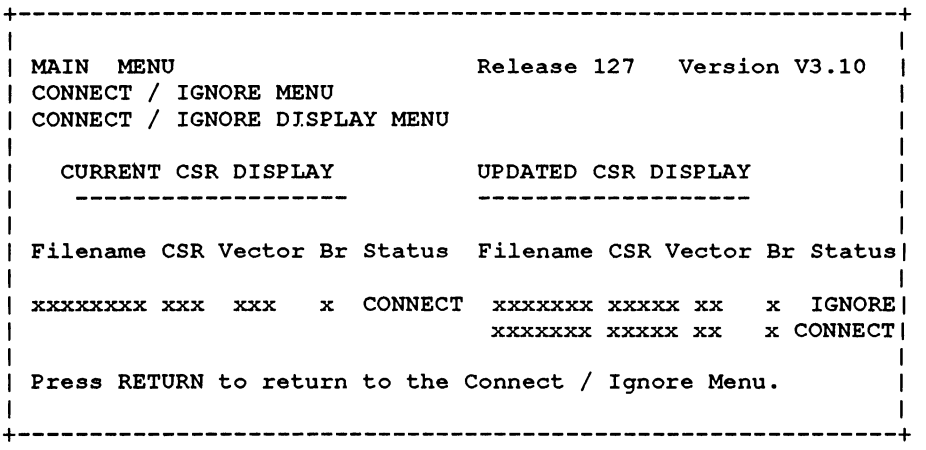

MAIN MENU
Release 127 Version V3.10
CONNECT / IGNORE MENU
CONNECT / IGNORE DISPLAY MENU
CURRENT CSR DISPLAY
UPDATED CSR DISPLAY
Filename CSR Vector Br Status
Filename CSR Vector Br Status
xxxxxxxx xxx xxx x CONNECT
xxxxxxx xxxxx xx x IGNORE
xxxxxxx xxxxx xx x CONNECT
Press RETURN to return to the Connect / Ignore Menu.

Figure 2–6: CONNECT / IGNORE ACTIVATION MENU

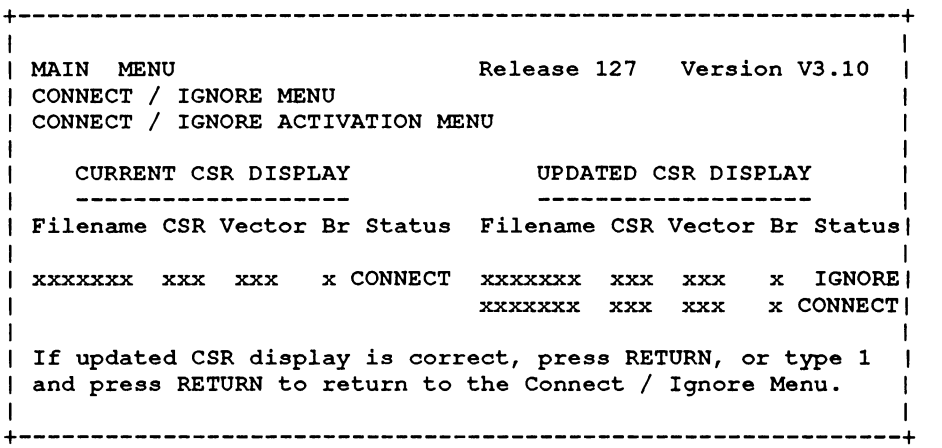

MAIN MENU
Release 127 Version V3.10
CONNECT / IGNORE MENU
CONNECT / IGNORE ACTIVATION MENU
CURRENT CSR DISPLAY
UPDATED CSR DISPLAY
Filename CSR Vector Br Status
Filename CSR Vector Br Status
xxxxxxx xxx xxx x CONNECT
xxxxxxx xxx xxx x IGNORE
xxxxxxx xxx xxx x CONNECT
If updated CSR display is correct, press RETURN, or type 1
and press RETURN to return to the Connect / Ignore Menu.

Figure 2–7: SELECT SINGLE DEVICE TEST MENU

```
+------------------------------------------------------------+
|                                                            |
| MAIN  MENU                        Release 127   Version V3.10  |
| SELECT SINGLE DEVICE TEST                                  |
|                                                            |
|                                                            |
|  Select the device number to be tested.  The functional    |
|  tests will be run followed by the exercisers for 4 minutes.|
|                                                            |
|                                                            |
|       1 - CPUA - MicroVAX/rtVAX CPU                        |
|       2 - MEMA - MicroVAX II/rtVAX memory system           |
|       3 - DEQNA - Ethernet controller                      |
|                                                            |
|                                                            |
|  Type the number; then press the RETURN key, or type 0 and |
|  press RETURN to return to the Main Menu.                  |
+------------------------------------------------------------+

       0 - goes to figure 2-1
       1 - n  executes the tests for the selected device
```

NOTE: *The devices listed here are the same as those listed in menu selection 2 or after a SHOW CONFIGURE command.*

In the CONNECT/IGNORE submenus of this feature, entering 1 or 0 has the same effect, even though the display instructions refer only to the 1.

2.2.6 Display of Release Number and Version

The disclaimer screen and the menu screens have been changed. The screens now display the release number and the version number as shown below:

```
Release 127  Version V3.1
```

This information is displayed in the upper right hand corner of the menus and disclaimer screen.

2.2.7 SHOW DISABLE Command

Version 3.1 of MDM supports the new CLM command SHOW DISABLE. This command provides information on why certain diagnostics are disabled. SHOW DISABLE works only in CLM mode. If a diagnostic raises an exception and if the diagnostic service library (DSL) catches it, the exception value (EXCEPTION), processor status longword (PSL), and

program counter (PC) are saved. When the SHOW DISABLE command is given, these values are displayed. See the following example:

```
MDM>>  SHOW DISABLE
MDM>>  DIS 2
MDM>>  DIS 4
MDM>>  SHOW DISABLE

      FILENAME     PC      PSL      EXCEPTION
                  (HEX)   (HEX)     (HEX)

 2    CPUA          0       0       00000000
 4    MEMA          4839    162     00007C04

FILENAME - name of disabled diagnostic
PC       - program counter  (default = 0)
PSL      - process status longword  (default = 0)
EXCEPTION- error exception value (default = 0)

An exception number of 0 indicates the diagnostic has disabled
itself.
```

The example above shows that the MEMA diagnostic raised an exception that DSL was able to catch. The exception it raised was a bad parameter count, whereas with the CPU diagnostic, it is disabled but did not raise an exception. If a diagnostic disables itself, or if a user disables the diagnostic and an exception was not raised, the PC, PSL, and EXCEPTION display the default value zero. If the SHOW DISABLE command is given and all diagnostics are enabled, the following message is displayed:

```
 ALL diagnostics are enabled.
```

Refer to the following kernel message chart for exception number translations.

```
The following is a complete list of MDM kernel messages.

EXCEPTION NO.   Acutal Message
(In Hex)

00000001 <normal successful completion>

The following errors are considered fatal by MDM:
```

```
00007C04        <bad parameter count>
00007C0C        <bad job or process creation>
00007C14        <bad string parameter length>
00007C1C        <bad access mode>
00007C24        <bad stack>
00007C2C        <bad object state>
00007C34        <bad object type>
00007C3C        <bad parameter value>
00007C44        <connect circuit completed>
00007C4C        <connect circuit pending>
00007C54        <connect circuit timeout>
00007C5C        <count overflow>
00007C64        <count underflow>
00007C6C        <debug signal>
00007C74        <already connected>
00007C7C        <circuit disconnected by partner>
00007C84        <duplicate name>
00007C8C        <kernel stack not valid>
00007C94        <machine check>
00007C9C        <no access to parameter>
00007CA4        <no destination port>
00007CAC        <no job initialization specified>
00007CB4        <physical memory available>
00007CBC        <no I/O mapping register available>
00007CC4        <no message available>
00007CCC        <no object table entry available>
00007CD4        <no process page table available>
00007CDC        <no datapath register available>
00007CE4        <no pool available>
00007CEC        <no port available>
00007CF4        <no exit status value specified>
00007CFC        <no such device>
00007D04        <no such name>
00007D0C        <no such port>
00007D14        <such program>
00007D1C        <no such service>
00007D24        <no system page table entries available>
00007D2C        <no virtual address space available>
00007D34        <power recovery signal>
00007D3C        <quit signal>
00007D44        <remote port value>
00007D4C        <process exit signal>
00007D54        <remote system currently unreachable>
00007D5C        <SIGNAL>
00007D64        <remote system rejected username or password>
00007D6C        <bad message size>
00007D74        <referenced shareable image not present>
00007D7C        <unsupported program image format>
00007D84        <internal consistency failure>
00007D8C        <port on another bi node>
```

```
The following messages are alternate success codes

00007F01      <time has not been previously set>
00007F09      <expedited message>
00007F11      <previous job actually created area>
```

2.3 IOADDRES

IOADDRES informs you of devices' correct base control and status register (CSR) addresses and base vector offsets.

Use the information supplied by IOADDRES to verify and adjust devices' hardware and software settings. Also use the supplied information to add or remove a non-DIGITAL device from the configuration seen by MDM either by selecting the Main Menu's Connect/Ignore Menu option or by entering the connect and ignore commands in Command Line Mode (CLM).

2.3.1 Starting IOADDRES

Run IOADDRES in either verify or service mode.

- *Customers* run IOADDRES by:
  1. Selecting MDM Main Menu Option 3, "Display the System Utilities"
  2. Selecting the latter menu's "IOADDRES" option, as illustrated in Figure 2–8

Figure 2–8: System Utilities Menu

```
+-----------------------------------------------------------------+
|                                                                 |
|   MAIN MENU                                                     |
|   SYSTEM UTILITIES                                              |
|                                                                 |
|    Utility selections are:                                      |
|                                                                 |
|    1 - IOADDRES                                                 |
|                                                                 |
|    2 - RXAA - Disk drive formatter for RQDX controller A        |
|                                                                 |
|                                                                 |
|  Type the number; then press the RETURN key                     |
|   or type 0 and press the RETURN key to return to the Main Menu. |
|                                                                 |
+-----------------------------------------------------------------+
```

- *Service personnel* and customers who have the MicroVAX Maintenance Kit may use CLM to run IOADDRES by entering the following command at the MDM prompt:

  MDM>>**RUN IOADDRES**

2.3.2 Running IOADDRES

MDM prompts for the count of each type of MDM-supported device on your system by displaying the information shown in Figure 2–9 one line at a time.

Figure 2–9: MicroVAX Device Address Calculator Menu

```
IOADDRES - MicroVAX Device Address Calculator, V3.01

Enter the count of LPA (LPV11) Devices :
Enter the count of TSA (TSV05) Devices :
Enter the count of ZZZ (RQDXn, other MSCP) Devices : 1
Enter the count of ZZT (TK50, other TMSCP) Devices : 1
Enter the count of XQA (DEQNA) Devices : 1
Enter the count of DLA (DLV11) Devices :
Enter the count of VVA (VSV21) Devices :
Enter the count of ZZQ (DZV11, DZQ11, DFA01) Devices : 1
Enter the count of ZZW (DRV11-W (DR11W mode)) Devices :
Enter the count of ZZB (DRV11-W (DR11B mode)) Devices :
Enter the count of DPA (DPV11) Devices :
Enter the count of DMA (DMV11) Devices :
Enter the count of ZZY (KMV1A, KMV1B) Devices :
Enter the count of IEA (IEQ11) Devices :
Enter the count of DHA (DHV11, CXA16) Devices : 1
Enter the count of DHF (DHF11, CXF32) Devices :
Enter the count of VCA (VCB01) Devices :
Enter the count of LAA (LNV11) Devices :
Enter the count of LNA (LNV21) Devices :
Enter the count of ZQA (Token Bus Adaptor) Devices :
Enter the count of DSA (DSV11) Devices :
Enter the count of ADC (ADV11-C) Devices :
Enter the count of AAC (AAV11-C) Devices :
Enter the count of AXA (AXV11-C) Devices :
Enter the count of KWA (KWV11-C) Devices :
Enter the count of ADA (ADV11-DA) Devices :
Enter the count of AAA (AAV11-DA) Devices :
Enter the count of VCB (VCB02) Devices :
Enter the count of DRB (DRV11-J) Devices :
Enter the count of QBA (DRQ3B) Devices :
Enter the count of IBA (IBQ01) Devices :
Enter the count of IDA (IDV11-A) Devices :
Enter the count of IDB (IDV11-B) Devices :
Enter the count of IDC (IDV11-C) Devices :
Enter the count of IDD (IDV11-D) Devices :
Enter the count of IAA (IAV11-A) Devices :
Enter the count of IAB (IAV11-B) Devices :
Enter the count of MIA (MIRA) Devices :
Enter the count of AQA (ADQ32) Devices :
Enter the count of CQA (DESNA) Devices :
Enter the count of DQA (DRQ11-C) Devices :
Enter the count of KXA (KXJ11) Devices :
```

Respond to each prompt as follows:

- If one or more of the devices listed on the displayed line is connected to your system, enter the count of these devices and press RETURN. MDM displays the next prompt.
- If *none* of the listed devices is connected to your system, press only RETURN. MDM displays the next prompt.

Once you have responded to all prompts, MDM displays a tally of the devices, as illustrated in Figure 2–10.

Figure 2–10: Summary Device Selections

```
Selections
Type : Count

ZZZ :  1
ZZT :  1
XQA :  1
ZZQ :  1
DHA :  1
```

MDM then displays the correct base CSR address (octal) and base vector offset (octal) of each set of devices of that family and the first available CSR address and vector offset, as illustrated in Figure 2–11. You use the available addresses to calculate CSR addresses and vector offsets for additional non-DIGITAL devices.

Figure 2–11: CSR and Vector Information

```
Device information
Type : CSR : Vector

ZZZ # 1 : 172150 : 154 (RQDXn, other MSCP)
ZZT # 1 : 174500 : 260 (TK50, other TMSCP)
XQA # 1 : 174440 : 120 (DEQNA)
ZZQ # 1 : 160100 : 300 (DZV11, DZQ11, DFA01)
DHA # 1 : 160500 : 310 (DHV11, CXA16)

First available floating CSR: 161302
First available floating vector: 320
```

2.3.3 Stopping IOADDRES or Exiting

Type "EXIT" and press RETURN to stop the program at any time. IOADDRES calculates the CSRs of the devices reported up to that time. Pressing CTRL/C terminates the program without listing CSR and vector information.

Chapter 3
Problems and Corrections

This chapter discusses problems and corrections for the current release. These corrections are divided into monitor and diagnostic problems.

3.1 Monitor Problems

Monitor problems are subdivided into five sections: Menu, CTRL/C Mode, Command Line Mode, CONFIGURE/IOADDRES, and Miscellaneous.

3.1.1 Menu Problems

When the Run exerciser is chosen in the Device Menu, the exerciser runs indefinitely. Discontinue the test by entering CTRL/C.

3.1.1.1 Serv Menu 1 hangs when total dev cleanup time > 1 min

When running SERVICE MENU MODE option 1 (Test the system) the system hangs when the following set of boards in the stated slot order is used:

```
  CPU
       MEM
  DMV11
  DHQ11
  DESQA
  DFA01
  TK70
  DLVJ1
  DRQ3B
  DRV11-J
The displayed results are:
        RESULTS:
        BEGIN DEVICE TESTS
        This is a test of all .........
        ..............................
        DEVICE                  Result
```

```
CPUA ..............passed
MEMA ..............passed
TKXXA .............passed
DLVJ1A ............passed
DLVJ1B ............passed
DLVJ1C ............passed
DFA01  ............passed
DMV11A ............passed
DJ-CX0A ...........passed
DRV11JA ...........passed
DRQ3BA ............passed

BEGIN EXERCISER TEST

Results are reported at the end of the testing
Time Out
```

Once the time out has occurred the system is hung.

Note : This happens the first time option one is executed 60 % of the time. When it does not happen an imediate reexecution of option one will result in the hanging of the system.

3.1.2 CTRL/C Mode Problems

3.1.2.1 CTRL/C with VCB01

VCB01—Test 7 sometimes goes into CTRL/C mode when CTRL/C is pressed once. At other times, such as when running multiple passes of test 7, pressing CTRL/C many times is necessary to enter CTRL/C mode. VCB02—Tests 1, 2, and 6, which used to hang after CTRL/C was pressed once, now enter MDM CTRL/C Mode when CTRL/C is pressed twice. The above problems may happen on more tests than indicated here.

3.1.2.2 GPX and CTRL/C

Entering CTRL/C discontinues the GPX (VCB01 or VCB02) systems. The VCB01 or VCB02 diagnostics discontinue after typing a HALT or CONTINUE command at the CTRL/C prompt. Other tests that may be running will continue when a continue is issued; the VCB tests will halt.

3.1.2.3 Commands at CTRL/C can cause system to hang

If all the diagnostics in functional mode are started and a CTRL/C is done, then certain commands are entered at the CTRL/C, the system can hang. This has been observed with the CTRL/C command sequences of SH CLO, SH CONF BRIEF, and SH CONF FULL. These commands may not be the only ones which will produce this, but they are the ones that have been confirmed. Once these commands are entered in this order, the system will hang when a HALT is done. This has been seen when running the RQDX and the DHV11 tests. This is independent of whether or not the VCB is the primary console.

3.1.2.4 CTRL/C Suspends Diagnostic Execution

Entering CTRL/C in functional, or utility modes suspends execution of all diagnostics that are running. This suspension occurs only when the diagnostic makes a DSL$ call, such as DSL$_WRITE_LINE, that displays a line on the CRT. In exerciser mode the suspension occurs upon entering CTRL/C mode. The pause interferes with a diagnostic test in the following two cases:

- When the call is issued during a diagnostic timeout check on a device operation
- When a device is waiting on a diagnostic to respond to it

3.1.2.5 CTRL/C at time a devices' tests finish can hang system

While running tests on a device, if a CTRL/C is entered just at the time in which the diagnostic is finishing then there is the potential for a monitor hang. The following is a scenerio that causes this hang.

```
CPUA started.
CPUA pass 1 test number 1 started.
CPUA pass 1 test number 2 started.
CPUA pass 1 test number 3 started.
```

At this time if CTRL/C is entered the following cpu passed message is displayed:

```
CPUA passed.
```

At this point there is a few second's hesitation and the monitor returns back to the monitor prompt:

```
MDM>>
```

If the tests are restarted again the following is displayed:

```
MDM>> START

CPUA started.
```

and the system appears hung at the prompt. However CTRL/C mode can be entered and any CTRL/C command can be performed. While in CTRL/C if any of the SHOW DEVICE commands or the SHOW CONFIG FULL command is entered then the system will be hung and can not be returned to the normal MDM>> mode. If CONTINUE or a HALT is then entered the cursor will drop to the next line and hang there. Now the system will have to be rebooted to continue. If on the other hand when CTRL/C mode was entered, commands other than the above commands (other than SHOW CONFG FULL or SHOW DEVICE) will CONTINUE or HALT the diagnostic without getting hung.

Note:

Once a CTRL/C has been entered at the correct point in the diagnostic to cause the above to happen it does not matter what diagnostic you try to start next,either the same one, a different one or all of them, the monitor will hang in CTRL/C the same way as above.

3.1.2.6 Ctrl/C during KFQSA functional test will terminate MDM

The following CTRL/C sequences, while running the KFQSA during the functional test will terminate MDM: In Menu Mode:

```
SELECT MENU OPTION 6 "SINGLE DEVICE TESTING"

SELECT THE KFQSA
```

Wait for about 45 to 55 seconds and hit a Ctrl/C the system will terminate MDM and and display

```
?06 HLT INST
    PC = 00002c98
```

This may not always occur each time. In Service "CLM" Mode:

```
SELECT KFQSAA  or KFQSAB
SET SECTION FUNCTIONAL (default)
START
```

If CTRL/C is entered after 55 to 65 seconds(this will be after the display of KFQSAA pass test 1, test number 9 started, MDM will terminate and the following display will appear:

```
?06 HLT INST
    PC = 00002edb
```

3.1.3 Command Line Mode Problems

3.1.3.1 If diagnostic disabled then sh dev "command doesn't show

Not all the messages get printed out if a diagnostic disabled itself. If you do a SH DEV UTIL, the display looks like:

```
RQDXA   Device disabled by diagnostic

        1 -
        2 -
        3 -
        4 -
        5 -
```

If you do a SH DEV TEST the display looks like:

```
RQDXA   Device disabled by diagnostic
 Functional Tests
     1v -
     2v -
     3v -
     4s -
 Exerciser Tests-
     1v -
     2s -
```

If you do a SH DEV FRU on a device that is disabled during the configuration, you get the message that there are no FRUS. If you do it to a device that disabled itself running (not configging), you get all the FRUs listed OK. The SH DEV TESTS and SH DEV UTIL gives the blank info no matter whether you disable at configure time or at runtime.

3.1.3.2 UNITS ENABLE and DISABLE don't work if unit # > 15

The UNITS command in MDM allows the user to either ENABLE or DISABLE individual device units. Devices unit numbers can range from 0 to 1024. However, if either the UNITS ENABLE or the UNITS DISABLE command is entered with a Unit number greater than 15 the following message gets returned: Invalid unit number, Unit number range 0-15 and the user has no way to either disable or enable any units declared by any devices if the unit numbers are greater than 15.

3.1.4 IOADDRES, SYSTEM UTILITIES and CONFIGURE Problems

3.1.4.1 Reset Configuration Takes 1 Hour with RV20 on NA04 Image

If a system with an RV20 device is loaded by a tape (TK50) version of MDM, the RESET CONFIGURATION command causes the system to appear suspended while the command takes an hour to complete. Rebooting the system is faster than using that command.

3.1.4.2 RRD40 and RRD50 Not Recognized When Loaded Over Lance

If a system with a RRD40 or RRD50 is loaded to the LANCE via the NA09Ax.sys image, the RRD devices are not recognized and appear in the SHOW BUS command as NAZZZ. If the regular NA06Ax.sys is loaded to the QNA, the RRD devices appear correctly as NARRA.

For example, if the following configuration is set up in a system and the NA09Ax.sys image is loaded over the Lance, the RRD does not get recognized. Below is what appears with the SHOW BUS command:

```
NAKAA 1 600000 000 CONNECTED
NAMTA 1 600020 000 CONNECTED
NAMDS I 160004 000 CONNECTED
NALAN 1 600060 004 CONNECTED
NAKDA 1 721501 544 CONNECTED
NATKA 1 745002 604 CONNECTED
NAXQA 1 744401 205 CONNECTED
NAZZZ 1 603343 004 CONNECTED
```

On the other hand, if the load device is changed over to the QNA and the NA06Ax.sys image is loaded, each device gets recognized correctly as follows:

```
NAKAA 1   600000 000   CONNECTED
NAMTA 1   600020 000   CONNECTED
NAMDS I   160004 000   CONNECTED
NALAN 1   600060 004   CONNECTED
NAKDA 1   721501 544   CONNECTED
NATKA 1   745002 604   CONNECTED
NAXQA 1   744401 205   CONNECTED
NARRA 1   603343 004   CONNECTED
```

3.1.5 Miscellaneous Problems

3.1.5.1 Messages from RXs Are Not Correlated

Messages are unsynchronized while loading diagnostics from RX50 media after a RESET CONFIGURE command. For example, the message to put in the next diskette comes while the previous diskette is loading; the message that diagnostics were loaded comes one diskette late.

3.1.5.2 VMS and MDM Read the Clock from CPUs Differently

VMS and MDM read the clock from the same CPU differently. For example, if VMS is running on a system, executing the SHOW TIME command may produce the response:

```
2-Nov-1988  10:30:00
```

If VMS is shutdown and MDM is brought up immediately, its time will read

```
4-Dec-1988  12:50:00
```

The difference between the times depends on CPU. The time difference may cause problems if the time is changed in MDM and not changed when VMS is brought up again.

3.1.5.3 System loading much longer with KA650 firmware

When loading MDM on a system from any media format (tape, floppy, network), the μVDOS banner is displayed as soon as the system image is loaded into memory. Usually, only 5-10 seconds elapses from the time the μVDOS banner is displayed to the time that the MDM disclaimer screen is displayed. However, when loading a KA650 system with new firmware, this takes MUCH longer. The lines print slowly, with approximately a 20 second gap between each line printing. The firmware for the old board is "MC=02 FW=14". The firmware which exhibits this behavior is "MC=04 FW=45".

3.2 Diagnostic-Based Problems

3.2.1 Communication Devices

The following communication devices cause diagnostic problems.

3.2.1.1 DMV11

When the DMV11 and the DRQ3B exercisers are run together on multiple passes, the DMV11 occasionally generates the following error:

```
Error 1402 - Transmit/Receive error using external loopback
```

This error occurs on all CPUs. The DMV11 runs alone successfully, but when the DRQ3B is added to the system, the error occurs intermittently. The error does not happen right away; 30 minutes may pass.

3.2.1.2 DZV11/nadzaf - Fails exerciser test 1 with DTQNA in config

A bus timing problem has been discovered with the DZV11/DZQ11/DTQNA configured in a system. The failure occurs with the DZV11 as the second DZA device. This failure only occurs after the initial boot, not after a reset config or config. The failure has also been observed when the DZV11 is the first DZA device in the configuration, but the frequency of occurance is less.

The failure has been observed when the bus is set up as follows:

```
nakaa   160000  000
namta   160000  000
narxa   172150  154
natka   174500  260
nadza   160100  300     dzq11
nadza   160110  310     dzv11
nadha   160500  320
nazqa   172570  330     dtqna
naxqa   174440  120
```

3.2.2 Storage Devices

The following storage devices cause diagnostic problems.

3.2.2.1 DSSI

When you run the verify test 4 of the DSSI and have the drive off line, the test fails. The verify tests are supposed to run whether or not a drive is attached and on line. This is only a READ test, but still needs the DUP code to run, which does not happen if the drive is off line.

3.2.2.2 KDA50–QA

The RA82 drive must be spun up in order for the verify mode test to pass. If they are not ready, the following error appears:

```
An unrecoverable error has occured on drive number 0.
Error occurred during MSCP Online command.
MSCP Command Reference Number: 00000003.
MSCP Command status: Drive unit offline
MSCP status subcode: No volume mounted or run/stop switch is off

KDA50QA - Error Number 47 29-JUN-1988 08:00:00.48
Drive became "unit-offline" during a MSCP operation.
Fixed media disk drive
KDA50QA failed.
```

3.2.2.3 RC25 - nakdal - Functional tests can give fatal bugcheck

When running the functional tests with pass set to 0 on the KDA50 diagnostic running on the RC25 with the KA650 the follwing fatal bugcheck will occur:

```
** Fatal Bugcheck, uVDOS V3.0. UNXINTEXC, unexpected interrupt
                                                    or exception

Job 000300D2, Program: nakda

  R0      ...     R4        R5      R6        R7
00000001 ...  00000005 00000001 00000000 00000005
7fffffff ...  000011ea 7ffffd18 80055bf0 80004e04
  R8      ...     AP        FP        SP        PC

KERNEL/INTERRUPT STACK

   80055BF4 04_70000
 80055BF8 000096D4
 80055BFC 000000A0

System shutdown complete - use console to halt system
```

This occur on different pass numbers ranging from 1 to 137. However it usually occurs after running test 1.

3.2.2.4 RRD50

Running utility test 5 takes longer than 1 hour. During that time no progress messages are displayed to inform the user that the diagnostic is still running. The MDM monitor displays the message "return status 34" indicating no messages from the diagnostic have occurred during that time.

3.2.2.5 Some Diagnostics Configure If Connected to Nonexistent Devices

When a diagnostic is connected, the configure procedure determines whether the device for which the diagnostic exists is correct. The TU diagnostics allow the connection and configuration at another device's address without failure, so the device is not disabled. The NATUAF diagnostic tests fail when run in this situation. These devices also configure when they are connected to addresses where no device exists. For example, in the following system:

```
NAKAA 160000 000 0 CONNECTED
NAMSA 160002 000 0 CONNECTED
NARXA 172150 154 0 CONNECTED
```

if the TU diagnostic (NATUA) is connected to an arbitrary address in which there is no actual device, such as:

```
NATUA 165500 300 4 CONNECTED
```

the respective diagnostic configures without disabling.

3.2.2.6 Rv20/narva - Incomplete Setup Message

When trying to run the functional or exerciser tests for the RV20 disc, there is a problem with the disc being initialized. There are two errors reported:

- long gap encountered
- diagnostic disc is not mounted.

These errors occur because the disc must be initialized before any data read or write tests can be performed.

Utility test #13, which performs diagnostic test disk initialization, may have to run before any read or write tests can performed.

3.2.2.7 RV20/narva - Incorrect disc write protection messages

When RV20 diagnostic utility test #13 is run to initialize the test disc two messages appear which indicate that the disc is write protected when, in fact, both the write protect switches on the disc and the drive are set to write enable. The messages are: 1) test disc is data safety protected and 2) disc is hardware write protected may be related to the fact that the EPROMS on the drive itself are at least one revision level down from the current EPROM revision level. Once new EPROMS are burned with the latest

microcode and installed the problem may be solved. However, until then it seems that the write protection mechanism or the diagnostic is faulty.

In addition, functional test 17 fails with the error:

Error 1112 Long gap encountered

functional test 18 fails with the error:

Error 1042 Diagnostic disc not mounted

Both errors are related to the disc not being initialized.

3.2.2.8 RV20/narva - Service Functional setup msg truncates

The setup message for the service functional tests is truncated at 80 characters and displays as follows:

```
  ***** WARNING ***

The RV20 diag performs write/read tests on the disc. DATA ON THE
                                                          DISC WIL

The above message will appear, in its entirety, on one line.
```

3.2.2.9 TK50/TK70 - fails verify tests if drive offline

When running the customer kit, there are no setup messages to tell the customer that a tape needs to be in the drive and the drive has to be online to run the test. If the drive is offline or there is no tape in the drive, the only message returned is that the TK50/70 failed.

3.2.3 Miscellaneous Problems

This section contains problems with devices other than communication and storage devices.

3.2.3.1 IAV11B

Running the diagnostic NAIABB utility test 3 produces the DSL$ message: DSL$NULL_VALUE, when an invalid response is entered. Error checking does not inform you that a value must be entered.

3.2.3.2 MIRA

When running utility tests 3, 4, or 5 on the MIRA and after the individual general SETUP messages are displayed, the user is prompted to enter a 1 or 2 and press RETURN, corresponding to the particular mode (maintenance or installation) that the user is in.

If the user enters an out-of-range number (either 0 or greater than 2), the cursor drops to the beginning of next line and waits there. Then, if the user enters either a 1 or 2 and presses RETURN, the test continues according to which value was entered.

3.2.3.3 MIRA - Utilities 3,4,5 Display DSL$ Messages

If you press RETURN, the following message is displayed and the test ends:

```
ERROR::DSL$NULL_VALUE
Mira failed, testing terminated.
```

Also if you type anything other than a number, you get a similar message:

```
ERROR::DSL$NON_DECIMAL
Mira failed, testing terminated.
```

3.2.3.4 IGQ11/naIga - Functional test setup msg truncated

The setup message for the IGQ11 functional tests goes beyond the screen width and gets truncated.

The setup message actually reads:

Please install the loopback connector on this device.If only one GENI, ignore re

The complete message should read:

Please install the loopback connector on this device.If only one GENI, ignore request, then press the RETURN key.

3.2.3.5 IGQ11/naIga - Menu 6 fails device due to no verify exer tests

There are no verify exerciser tests for the IGQ11 controller. When menu option 6 is selected and run, the monitor says the device fails when in fact no exerciser tests were ever run. The functional tests run OK.

3.2.3.6 IGQ11/naiga - Verify func test 4 fails with memory pattern err

When running the verify functional test 4 for the IGQ11 with the KA650 using the latest firmware (5.1), the device fails due to an address compatability problem. When the test is run on the same CPU with the old firmware, the device passes. The problem may be related to the new CQBIC chip. The error which occurs is as follows:

```
IGQ11 - Error 6  date
Memory pattern error during address pattern check
Probable Mother board controller, else GENI 2
```

3.2.3.7 AXV11-C fails exerciser 1 with KA655

The AXV11-C fails functional test 6 when run with the KA655 CPU.

3.2.3.8 ADQ32 - Utility error message gets truncated at 80 chars

When utility test 1 for the ADQ32 runs, it requires an AAV11 in the system. The diag fails if the AAV11 is not present. The error message it gives when it fails is truncated due to the autowrap getting fixed and truncating at 80 characters. The utility setup message has about 5 lines in it, and when the test fails, it prints out the error message, then the setup again. But the error and the first line of the setup get run together, and truncated. It reads: Bus timeout when attempting to read ADV11-D registersThis utility employs an AAV ... It should read: Bus timeout when attempting to read ADV11-D registers This utility employs an AAV11-DA module to test the ADQ32 ... The rest of the message is not affected.

3.2.3.9 ADV11-D - fails functional tests on KA655 CPU

The ADV11-D fails functional tests 6, 7, and 8 with the KA655 CPU only with the following errors:

```
Test 6 - error 150
Interrupt did not occur on A/D DONE

Test 7 - error 210
Error bit did not become set after 3 conversion triggers

Test 8 - error 240
A/D DONE bit was not set after triggering a conversion
```

As these are verify mode tests, they also fail in Main Menu 1.

3.2.3.10 ADV11-C - Fails exerciser tests with KA655 CPU

Both the verify and the service mode exerciser tests fail with the KA655 CPU only. The functional tests all pass, and these exerciser tests pass with all other CPUs. The failure occurs whether run alone or with all the other exercisers.

The error is:

```
Error 8 - After 2 A/D conversions, without reading DBR
 data expected:  1000000010000000
 data read: 0000000010000000

bad CSR after 2nd A/D conversion without reading DBR
```

3.2.3.11 KMV11 - Fails functional test 26 with KA655

Run the functional tests and test 26 will fail. This only happens on the KA655 CPU. Exerciser tests seem to run OK. All other functional tests pass. The error happens twice during test 26 and is:

```
KMV1AA - Error Number 103
ERROR WHEN TRANSMITTING IN INTERNAL LOOP WITHOUT INTERRUPTS
M7500 Controller Module
```

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